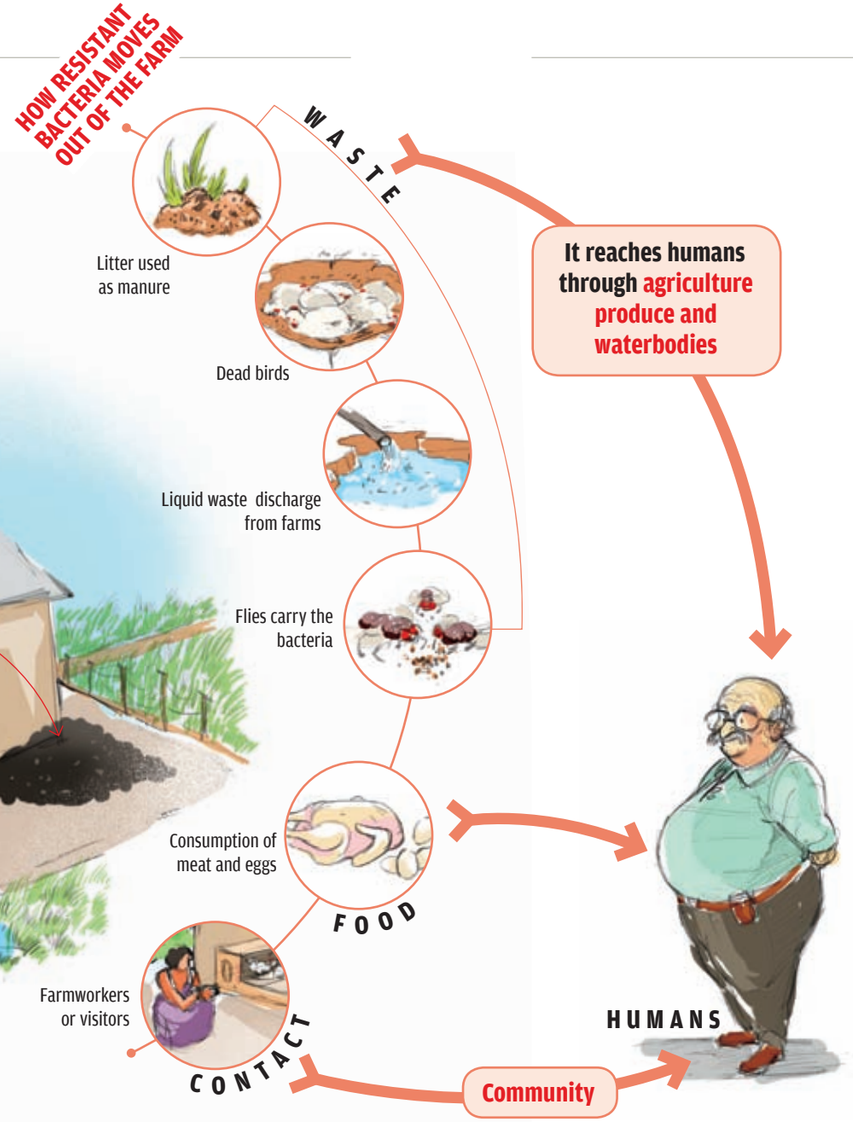
Poor practice

The common practice of using untreated poultry litter as manure in agricultural land is transferring bacteria that are resistant to multiple antibiotics

INTENSIVE BROILER POULTRY FARMS
extensively misuse antibiotics by routinely using them for fattening the chicken in less time using less feed and as a substitute for better hygiene conditions



Scope of the study

It was conducted across nine districts in key poultry states in north India

	Uttar Pradesh	Rajasthan	Haryana	Punjab	Total
Total samples collected	17	8	15	7	47
Samples from poultry farms	12	5	12	6	35
Control samples	5	3	3	1	12
Poultry farms visited for samples	4	2	4	2	12
Clusters	4	2	4	2	12

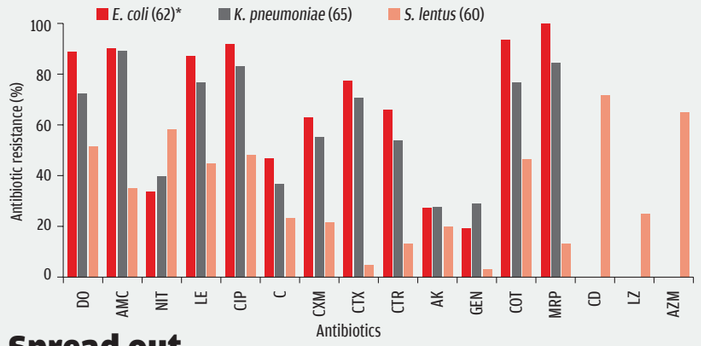
Antibiotics used | DO = Doxycycline Hydrochloride; AMC = Amoxyclav; NIT = Nitrofurantoin; LE = Levofloxacin; CIP = Ciprofloxacin; C = Chloramphenicol; CXM = Cefuroxime; CTX = Cefotaxime; CTR = Ceftriaxone; AK = Amikacin; GEN = Gentamicin; COT = Co-trimoxazole; MRP = Meropenem; CD = Clindamycin; LZ = Linezolid; AZM = Azithromycin

Note | All the samples were subjected to microbial analysis for bacteria isolation and characterised morphologically and biochemically. Select isolates were identified by 16 S rDNA gene sequence analysis by an external laboratory. Antibiotic susceptibility of all bacteria was determined by disk diffusion method, according to the Bauer-Kirby technique. Zones of inhibition obtained for each bacterium was compared with Clinical and Laboratory Standards Institute (CLSI) standards. European Committee on Antimicrobial Susceptibility Testing (EUCAST) standards were used where CLSI standards were not available

ILLUSTRATION AND INFOGRAPHICS: RAJ KUMAR SINGH / CSE

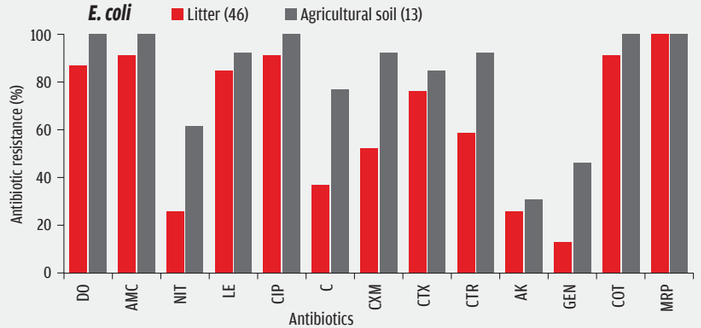
Advantage bacteria

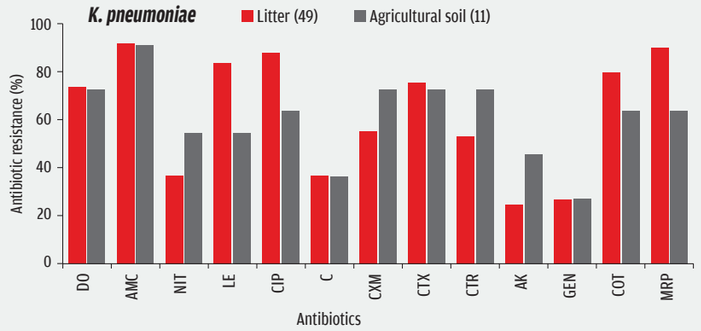
High multi-drug resistance was found in all 187 isolates from poultry environment

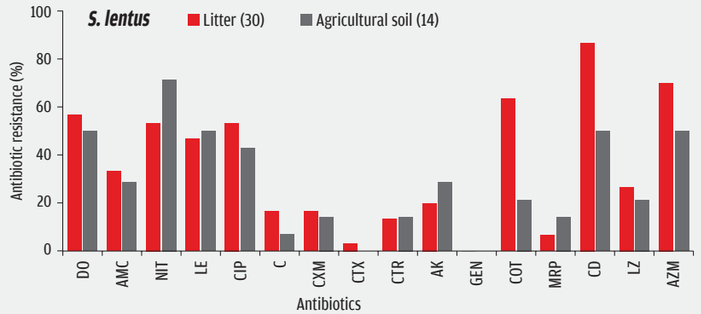


Spread out

Strong similarity in resistance pattern was observed in *E. coli* isolates from litter and agricultural soil







* ( ) signify number of isolates. A total of 217 bacteria isolates were obtained, of which 125 were from poultry litter, 24 from poultry farm soil, 38 from agricultural soil and 30 from control soil samples